

The Bay Institute

Protecting and Restoring San Francisco Bay from the Sierra to the Sea

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February 7, 2006

Mr. Paul A. Marshall
Department of Water Resources
South Delta Branch, Draft EIS/EIR Comments
1416 Ninth Street, 2nd Floor
Sacramento, CA 95814

RE: DRAFT SOUTH DELTA IMPROVEMENT PROGRAM EIS/R

Dear Mr. Marshall

This letter is submitted as the comments of the Bay Institute regarding the Draft Environmental Impact Statement/Environmental Impact Report (DEIS/R) for the South Delta Improvement Program (SDIP) prepared for the California Department of Water Resources (DWR) and the U.S. Bureau of Reclamation (USBR).

In summary, we find the DESIS/R to be seriously deficient in a number of areas:

- environmental review and implementation of the proposed project are premature;
- there is no demonstrated need for the proposed project;
- the draft fails to consider the likely effects of global climate change;
- the draft fails to consider the viability of the current Delta system;
- the draft fails to evaluate the impacts of future operational changes associated with SDIP;
- the range of alternatives evaluated in the draft is too narrow;
- the environmental impact analyses are flawed and inadequate;
- the impacts of the proposed project are not mitigated; and
- the cumulative impacts analysis is insufficient and incomplete.

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Based on our review, we recommend that DWR withdraw this DEIS/R and suspend consideration of the proposed project pending completion of ongoing research and planning efforts to address the future of the Delta system and the recent collapse of Delta fisheries. Any further consideration of SDIP must also re-evaluate the needs and objectives for the project, develop an appropriate range of alternatives, and conduct a new environmental review that adequately evaluates both project-related and cumulative impacts under realistic future conditions.

There are numerous conceptual problems with the proposed project and many specific errors, omissions, and deficiencies with the technical analyses described in the DEIS/R. We do not attempt to address all these concerns. Our comments below focus on what we consider to be the most serious of those flaws as well as some specific examples of major analytical errors.

Environmental review and implementation of SDIP are premature.

As described in the DEIS/R, the SDIP has three major components:

1. Installation of permanent operable barriers at four locations in the southern Delta. The objective for three of these barriers (Middle River, Old River at the DMC, and Grant Line Canal) is to reduce adverse changes in south Delta water levels and water quality that result from the combined effects of low San Joaquin River inflows and high State Water Project (SWP) and Central Valley Project (CVP) water exports and which impair local agricultural and urban diversion functions. The objectives of the fourth barrier (Head of Old River) are to a) reduce diversion of San Joaquin basin salmonids into the southern Delta where their survival is reduced and large proportions are entrained into the SWP and CVP export facilities; and b) increase flows in the San Joaquin River downstream of its confluence with Old River to minimally meet existing water quality objectives (e.g., dissolved oxygen).

2. Dredging of selected channels in the southern Delta. The objective of this component is to increase conveyance capacity for water in and through the southern Delta for SWP and CVP export and local diversions. In particular, dredging at the West Canal site has no purpose other than to increase conveyance to the SWP and CVP facilities and allow higher export rates than are currently physically possible or legally permitted.

3. Increase the presently allowed maximum pumping capacity of the SWP. The objective(s) for this operational action are variously characterized as increasing the amount of water exported from the Delta for use by south-of-Delta water contractors and water transfers, and increasing water supply reliability.

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The DEIS/R states that these SDIP components will be adopted in two stages, with the Stage 1 barriers and dredging proceeding before plans for increased exports (Stage 2) are further evaluated (with an additional separate NEPA and CEQA review) and, pending that review, subsequently adopted (p. ES-9). The DEIS/R further states that the decision to move forward with increased exports will depend on results of ongoing research to identify the cause(s) of the decline of Delta pelagic organisms and to clarify the role of water management operations and exports in that decline. Given that the objectives of the first two components are largely to facilitate implementation of the third, and given the present uncertainty regarding adverse environmental impacts of current export operations (much less increased exports as proposed), and even without considering other factors (such as global climate change or the viability of the Delta system, discussed below), it is clearly premature to proceed with either environmental review or implementation of a multi-million dollar infrastructure and channel modification project that at the least may prove unnecessary and at the worst could exacerbate to a large degree current problems in the Delta.

There is no demonstrated need for the project.

The DEIR/S cites the outdated 1998 California Water Plan (Bulletin 160-98) to justify the need for increasing water exports from the Delta. However, concurrent with its development of the SDIP and the DEIS/R, DWR was conducting an extensive review of the state's water resources and needs. Earlier this year, the agency released the Final California Water Plan Update 2005 (available at: <http://www.waterplan.water.ca.gov/cwpu2005/index.cfm>). This is the principal planning document for all water use in the state. According to the 2005 Water Plan, current water supplies are sufficient to meet the water needs of the state for the next 25 years. Further, based on current trends, water demands in the SWP water delivery area will likely decrease rather than increase, even accounting for water use by 12 million more residents. Because analyses documented in the state's most recent comprehensive water planning effort show that increased water exports from the Delta are likely unnecessary, the primary justification for the SDIP is not supported. In addition, the DEIS/R's reliance on obsolete analyses and water demand projections represents a serious analytical flaw in the document.

The DEIS/R fails to consider the likely effects of global climate change.

The projected future hydrology and water management operations analyzed in the DEIS/R are derived from the CALSIM II model results produced for the 2004 Operations Criteria and Plan (OCAP) (available at: http://www.usbr.gov/mp/cvo/ocap_page.html). These analyses and results have been repeatedly criticized for failing to consider the known and predicted effects of global climate change on hydrology in the watershed and, as follows,

the predicted state, federal and local water management operations that are the output of the model. As an example, failure to consider the effects of global climate change in the 2004 OCAP Biological Opinion for salmonids, which relied on the same CALSIM II results, was cited by the independent science panel reviewing that document as a significant analytical flaw and an example of the federal agencies' failure to use "best available science" as required by law (available at: http://science.calwater.ca.gov/workshop/workshop_ocap.shtml).

The effects of global climate change are already detectable in the watershed, including increases in air and water temperatures, changes in precipitation patterns and the relative proportions of rain and snow precipitation, and changes in the timing and duration of snowmelt. All of these factors have the potential to affect both water management operations and the types and magnitude of the effects of those operations on biological and ecological resources in the Delta and upstream. In their California Water Plan Update 2005 (see above), DWR did consider this issue in regards to statewide water planning. Failure to account for (or even consider) these effects on the SDIP renders the environmental analyses in the DEIS/R inaccurate and likely biased to underestimate adverse impacts of the proposed project. This represents another serious analytical error and technical deficiency in the environmental review.

The DEIS/R fails to consider the viability of the current Delta system.

There is gathering evidence that the current Delta architecture (i.e., levee configuration) and its hydraulic integrity for current (and future) water management operations are not sustainable. Delta levees are known to be structurally unsound, inadequately designed to withstand increasing hydrostatic pressures resulting from Delta island subsidence and sea level rise, and deteriorating. A number of eminent scientists and local experts have reported that large-scale, catastrophic failures of Delta levees within the next 50 years are probable (e.g., Mount and Twiss, 2004, Report to the Independent Science Board Levee Subcommittee; available at:

http://science.calwater.ca.gov/pdf/isb/ISB_subcom_levee_report_120104.pdf).

Failure of multiple levees in the Delta will result in salt water intrusion into the Delta, severely impairing or even precluding the Delta water export operations that are the overriding objective of the SDIP. Several recent events, including failure of the Jones Tract levee in 2004 and the massive storm-related levee failures in New Orleans, have further raised the level of concern and underscore the importance of this issue in planning for future management of the Delta.

The SDIP, which proposes to continue (and increase the intensity) of current water management operations in the Delta for decades into the future, ignores these likely changes and the inherent unsustainability of current Delta management. In addition, the effects of the proposed actions, including

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predicted increases in water elevation (by as much as nearly one foot under some conditions in the preferred alternative; DEIS/R p. 5.5-10), hydrostatic pressure on the levees, and channel scour that may exacerbate the existing instability of Delta levees, are inadequately analyzed and arbitrarily deemed "less than significant" in the DEIS/R. This represents a dangerous and potentially costly flaw in both the conceptual design of the project and the environmental review described in the DEIS/R.

The potential for catastrophic levee failure, along with other threats to the viability of the Delta system (including global climate change and changes to the food web as a result of non-native species introductions) has prompted a number of current or pending initiatives to re-evaluate water management and land use in the Delta, such as the Delta Risk Management Strategy, AB 1200, and the "Delta Vision" Process. Even if there were no concerns regarding the need for or environmental impacts of the SDIP, the simple fact is that it is almost certain to be out of date long before the project is permitted, constructed or operated.

The DEIS/R fails to analyze the impacts of future operational changes associated with SDIP.

In addition to the "no action" alternative (i.e., current seasonal temporary barriers in combination with the presently allowed maximum SWP export rates of 6680 cubic feet per second [cfs] for most of the year), the DEIS/R identifies and analyzes three alternatives for the Stage 1 physical/structural actions in combination with three alternative operational schemes for the Stage 2 increased SWP exports levels (to 8500 cfs). The DEIS/R also states that increases in SWP exports will not be implemented until results of the ongoing multi-agency research into the cause(s) of the Delta fish decline are available and the role of water export operations in the decline are clarified. The DEIS/R further states that "For the Stage 1 decision of SDIP, DWR and Reclamation will assume that the current regulatory limits apply regarding SWP export operations" (p. ES-9). However, the DEIS/R does not analyze an alternative with this combination of physical/structural and operational components. Therefore, this DEIS/R has failed to analyze the proposed project as it is clearly described in the document, making it both legally and technically deficient. A new EIS/R must be issued evaluating the impacts of future operational changes associated with implementing SDIP prior to certification of the environmental documentation and a final decision regarding the proposed project.

The DEIS/R fails to analyze the impacts of proposed Interim Operations.

For the preferred Stage 1 alternative (Alternative 2), the DEIS/R describes a plan to "allow increased diversions prior to the full implementation of the operational component" (p. 2-13). This contradicts other statements in the DEIS/R that a) specifically relate the staged decision-making process to uncertainties regarding

the cause(s) of the pelagic organism decline and the possible role of high exports in that decline (p. ES-8); b) commit to additional separate NEPA and CEQA review prior to the decision to move forward with the Stage 2 operational component of SDIP (p. ES-9); and c) explicitly state that DWR and USBR assume that the current regulatory limits for SWP export operations will apply to the Stage 1 decision (p. ES-9, and see above). The proposed interim operations would, during the December 15 – March 15 period, allow SWP exports to increase to the full 8500 cfs under hydrological conditions (i.e., low San Joaquin River inflows) during which such operations are presently prohibited. The impacts of the proposed interim operations are not specifically analyzed in the DEIS/R, another legal and technical deficiency in the environmental review. This omission is of particular concern because preliminary results of the ongoing multi-agency research into the pelagic organism decline (which were available several months before the DEIS/R was released) point towards high exports during the winter season as one of the likely causes (Armor et al. 2005; available at:

http://science.calwater.ca.gov/pdf/workshops/IEP_POD_2005WorkSynthesis-draft_111405.pdf). In addition, recent analyses of the effects of wintertime export rates on the Endangered Species Act-listed delta smelt clearly indicate that high exports during this period correspond to low and declining population abundance (see below and Figure 1).

The range of alternatives evaluated in the DEIS/R is too narrow.

The DEIS/R identifies three narrowly defined objectives for the project: reducing diversion of San Joaquin basin salmonids into the southern Delta; maintaining water levels and water quality in the southern Delta; and increasing water supply reliability and water deliveries to south-of-Delta users (p.ES-3).

However, the range of alternatives developed to accomplish these objectives and evaluated in the DEIS/R are all minor variations on a single theme: installing new barriers in the southern Delta channels, dredging channels, and permitting higher export rates at the SWP. During the extensive scoping sessions for the SDIP, many other alternative approaches to accomplish the expressed objectives of the project were suggested (see scoping comments available at:

http://sdip.water.ca.gov/public_outreach/pub_doc/scope_catalog.htm). For example, the Bay Institute and the Natural Resources Defense Council strongly recommended that alternative south-of-Delta water management options for achieving the project purpose be evaluated and included in the development of the project and environmental review. By limiting its analysis to barely distinguishable alternatives, the DEIS/R is both legally and technically deficient.

The environmental impacts analyses are flawed and inadequate.

In addition to failure to consider the effects of global climate change on future hydrology, water management operations, and resultant impacts on ecosystem

and biological resources (see above), the analyses of the project-related and cumulative impacts of the various project components on the Delta ecosystem and fishes are overly simplistic and seriously flawed. In fact, nearly all of the many adverse impacts that are identified and quantitatively and/or qualitatively described in the DEIS/R are, without explanation or analysis, deemed "less than significant" and requiring no mitigation. For example, the DEIS/R indicates that rearing habitat for delta smelt, a species listed under the federal Endangered Species Act and which is now on the brink of extinction (Bennett 2005; available at: <http://repositories.cdlib.org/jmie/sfews/vol3/iss2/art1/>), will be reduced by effects of the proposed project (p.6.1-94). Without further analysis, the DEIS/R then concludes that, because the predicted habitat reduction is "small" and that "few rearing months" are affected, the effects on survival of the species will be "less than significant". This conclusion clearly violates at least two of the significance criteria identified in the DEIS/R (i.e., long or short-term loss of habitat quality or quantity, and adverse impacts on endangered species; p. 6.1-44).

The unsupported hypotheses and assumptions, flawed analytical approaches, and erroneous conclusions regarding significant environmental impacts, particularly in regards to project impacts on the Delta ecosystem and its fishery resources, in the DEIS/R are too numerous to comment on individually. Below we provide just one example to illustrate the serious deficiencies and errors in this environmental review.

The DEIS/R states that entrainment loss of fishes into the SWP and CVP export facilities will increase as a result of increased water exports for all of the alternatives evaluated. The impact of the action on entrainment loss is measured in terms of predicted increases in the number of fish salvaged (i.e., number of fish diverted into collection tanks and counted) at the two facilities. Use of this metric, salvage, to evaluate the impact of the action, increased exports, is flawed for at least four reasons.

1. Salvage is known to be a gross underestimate of the actual numbers of fish lethally entrained into the SWP and CVP facilities. It does not include the numbers of fish that are smaller than 20 mm in length; therefore it massively underestimates the loss of larval and juvenile fishes. It does account for the numbers of fish that are not diverted into the collection tanks by the facilities' antiquated and deteriorating louvers and fish screens. Efficiency of the louvers to remove fish from the diverted water is known to be low. For example, for delta smelt, more than half of the entrained fish conveyed into the export facilities with diverted water pass through the louvers and are transported uncounted to the pumps (Bowen et al. 2004; available at: http://www.usbr.gov/pmts/tech_services/tracy_research/tracyfacility/tracyre

ports/). In addition, unknown proportions of the fish entrained into the facilities are lost to predation and/or other mortality factors and never reach the fish salvage facilities to be counted. Both louver efficiency and pre-screen mortality are known to vary with export rates and other environmental factors for at least some Delta species.

2. Salvage does not measure indirect effects of water exports on fishes, which can reduce survival of fish that are exposed to export operations but not directly diverted from the habitat. For example, survival of juvenile salmon migrating through the Delta is known to be reduced under conditions of high export rates (White et al. 2003; available at:

http://science.calwater.ca.gov/pdf/ewa/EWA_report_salmonid_100103.pdf).

3. There is no consistent relationship between the numbers of fish salvaged and export rates, one of the key assumption used for the DEIS/R analysis (Table 6.1-4). Recent analyses suggest that salvage rates may be disproportionately high under conditions of high export rates compared to lower export rates, in contrast to the linear increases used to estimate impacts in the DEIS/R (Herbold et al. 2004; available at:

http://www.science.calwater.ca.gov/workshop/workshop_pod.shtml).

4. The numbers of fish salvaged at the facilities are not related to the population level impacts of exports on the species salvaged. Given that an impact to population abundance is the criterion for determining significant impact (p. 6.1-44), use of the salvage metric is an inappropriate analytical approach that precludes accurate analysis of the impacts of the proposed actions.

The correct approach for analyzing the impacts of the action, increasing water exports, on population abundance of species is to analyze the relationships between those two variables, rather than comparing predicted increases in an inaccurate and less meaningful surrogate response such as salvage. Data on seasonal export rates and population abundance for most key species exist and were readily available to the agencies preparing the DEIS/R. Further, for at least for one key species, delta smelt, simple statistical analysis would have revealed that seasonal export rates significantly affect the population abundance of this endangered species (Swanson 2004; available at:

[http://science.calwater.ca.gov/pdf/ewa/EWA_Swanson_DS-](http://science.calwater.ca.gov/pdf/ewa/EWA_Swanson_DS-Exports_EWA_Review_113005.pdf)

[Exports_EWA_Review_113005.pdf](http://science.calwater.ca.gov/pdf/ewa/EWA_Swanson_DS-Exports_EWA_Review_113005.pdf)). This analysis showed that high export rates, particularly during the winter period, resulted in low delta smelt population abundance measured later that year (Figure 1). Failure to conduct these obvious and fundamental analyses to evaluate the impact of the action that is the overriding objective of the proposed project represents a glaring and indefensible omission in the DEIS/R.

The impacts of the project are not mitigated.

The DEIS/R identifies an "expanded" Environmental Water Account (EWA) (or an equivalent avoidance and crediting system should CALFED discontinue the EWA) as the sole mitigation measure for the adverse increases in entrainment losses of Delta and migratory fishes (p. 6.1-2). The EWA is now in its sixth year of implementation. The program has been subject to four consecutive formal reviews by an independent science panel and a fifth informal review late last year. Despite these exhaustive reviews, to date no evidence has been presented to indicate that the EWA is an effective tool for mitigating the adverse impacts of Delta export operations or even for reducing entrainment loss of fish at the SWP and CVP facilities. In fact, during the five years of EWA implementation, population abundance of many pelagic Delta fish species that will be affected by the proposed project, including delta smelt, have declined precipitously despite expenditures of roughly similar amounts of water for export curtailments as are proposed for mitigation in the DEIS/R. In addition, the DEIS/R assumes that the EWA or its equivalent will have expanded supplies when, in fact, over the past five years the EWA has actually secured only an average of 71% of the amounts of water anticipated in the CALFED ROD (average for 2001-2005; range: 33-92% of CALFED ROD-anticipated supplies). In part because of these shortfalls, EWA managers have been reluctant on numerous occasions to actually make expenditures from the EWA even when regulatory criteria and biological conditions called for such releases out of fear of exceeding the annual EWA budget, a situation that clearly calls into question the effectiveness of this mitigation approach. Finally, the current EWA is used to reduce exports only when delta smelt and/or Central Valley salmonids are vulnerable to entrainment. Assuming the EWA is implemented similarly in the future, the impacts of the SDIP project and proposed increases in exports on other rare and priority species such as longfin smelt and splittail will not be mitigated.

Analysis of cumulative impacts is insufficient and incomplete.

The cumulative impact analysis for the proposed project, at least for Endangered Species Act-listed species, apparently relies on the two Biological Opinions (delta smelt and salmonids) for the OCAP (p. 10-29). Both of these documents have been legally challenged and are presently in the court. Review of the salmon Biological Opinion by a panel of independent scientists unanimously determined that the document was not based on "best available science" as was required by law. Therefore, the DEIS/R's reliance on these environmental reviews as the basis for its evaluation of the cumulative impacts of the SDIP is highly questionable. In addition, this approach impermissibly excludes cumulative impact analysis for other rare and priority species, such as longfin smelt and splittail.

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For all of these reasons, we strongly recommend that the DEIS/R be withdrawn and the proposed project be suspended pending completion of the numerous research (such as the Pelagic Organism Decline investigation) and planning (such as the Delta Risk Management Strategy, AB 1200, the Delta Vision process, and the Delta Regional Ecosystem Restoration Implementation Project) efforts that will almost certainly result in new approaches to managing the Delta for water conveyance purposes.

Thank you for the opportunity to make these comments. If you have any questions, please contact me at (530) 756-9021 or swanson@bay.org.

Sincerely,



Christina Swanson, Ph.D.
Senior Scientist

cc: The Honorable Dianne Feinstein
The Honorable Barbara Boxer
The Honorable George Miller
The Honorable Mike Thompson
The Honorable Arnold Schwarzenegger
Mr. Kirk Rodgers
Mr. Steve Thompson
Secretary Michael Chrisman
Mr. Lester A. Snow

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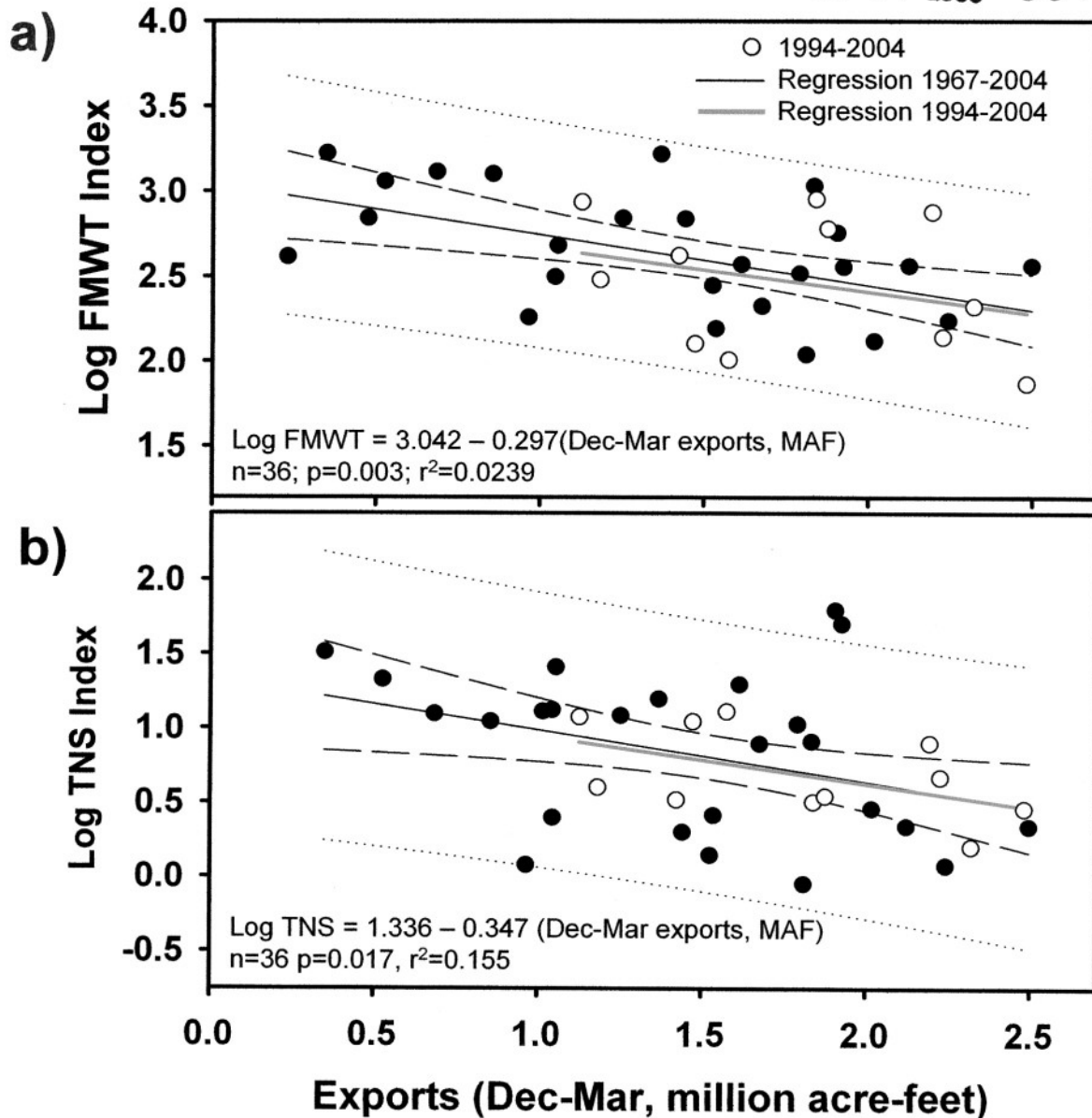


Figure 1. The relationship between winter (December-March) export amounts and subsequent abundance of delta smelt. a) sub-adult and adult delta smelt as measured by the FMWT Index (using data from 1967-2004); and b) juvenile delta smelt as measured by the TNS Index (using data from 1969-2004). For each graph, the regression, 95% confidence limits and the prediction limits are shown calculated for the entire datasets. The open symbols and the dark gray regression line highlight the years since the delta smelt was listed under the ESA (1994-2004). Data Sources: California Department of Fish and Game, California Department of Water Resources, Dayflow.